

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEBRASKA

DANIEL LEMBERGER,

Plaintiff,

vs.

UNION PACIFIC RAILROAD COMPANY,

Defendant.

8:18CV64

MEMORANDUM AND ORDER

This matter is before the Court on defendant Union Pacific Railroad Company's ("U.P.") motions to exclude expert testimony under [Daubert v. Merrell Dow Pharms.](#), [509 U.S. 579, 589 \(1993\)](#), Filing Nos. 39 and 40, and for summary judgment, [Filing No. 41](#), after oral argument on the motions on May 13, 2020. This is an action under the Federal Employers' Liability Act ("FELA"), [45 U.S.C. § 51 et seq.](#) The plaintiff, Daniel Lemberger, worked as a track welder at U.P., and/or its predecessors-in-interest, from 1972 to 2014. He alleges that while he was employed at U.P., he was negligently exposed to diesel exhaust and developed leukemia as a result.¹

U.P. first moves to exclude the testimony of Hernando R. Perez, Ph.D., and Arthur Frank, M.D. It argues their testimony is based on studies that do not fit the facts of the case and their opinions are unreliable and inadmissible under *Daubert*.

In its motion for summary judgment, U.P. first argues that without the expert testimony, the plaintiff cannot establish the general and specific causation necessary to establish liability. U.P. next challenges the plaintiff's evidence on causation, regardless of expert testimony, as a matter of law. It argues the plaintiff cannot establish liability in that he cannot prove exposure to levels of benzene sufficient to cause CML.

¹ Plaintiff has withdrawn his allegations of exposures to other carcinogens.

I. BACKGROUND

Dr. Hernando Perez is an industrial hygiene and occupational health expert who opined on Lemberger's workplace exposure to diesel exhaust and its component, benzene. [Filing No. 49](#), Ex. 5, Dr. Perez Report. Dr. Perez has a Ph.D. in industrial hygiene from Purdue University and a Master of Public Health degree in environmental and occupational health from Emory University. [Id.](#), Ex. 3, Dr. Perez Curriculum Vitae at 1. He is certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene and in the practice of safety by the Board of Certified Safety Professionals. [Id.](#) He has been employed as Lead Industrial Hygienist and Environmental Hygiene Program Manager for United States Citizenship and Immigration Services in the United States Department of Homeland Security since 2015. [Id.](#) at 2. In that capacity, he is responsible for coordination and performance of industrial hygiene activities at all USCIS facilities across the United States. [Id.](#) He was employed as full time faculty at the Drexel University School of Public Health from 2004 to 2014 and as Director of the Industrial Hygiene Consulting Service at the School from 2006 to 2014. [Id.](#)

In this case, Dr. Perez was asked to offer opinions on Lemberger's working conditions. [Filing No. 49](#), Exhibit 5, Perez Report at 1. Dr. Perez interviewed Lemberger, reviewed Lemberger's deposition, reviewed pleadings and materials supplied by plaintiff's counsel, and performed a literature review. [Filing No. 49](#), Ex. 4, Deposition of Dr. Hernando Perez ("Dr. Perez Dep.") at 174. He reviewed various journal articles, standard textbooks, and information from OSHA, NIOSH, EPA, ATSDR, MSHA, National Cancer Institute (NCI), National Institute of Environmental Health

Sciences (NIEHS), and International Agency for Research on Cancer (IARC). *Id.*, Ex. 5, Dr. Perez Report at 1. He relied, in particular, on data in two studies of diesel exhaust exposure.² *Id.* at 11 nn. 11 & 12; Filing No. 49, Ex. 6, Woskie Abstract; *id.*, Ex. 7, Pronk Manuscript. Dr. Perez also based the qualitative intensity of the diesel exposure on the plaintiff's testimony. Filing No. 49, Ex. 4, Dr. Perez Dep. at 104-05. He testified he was able to estimate a range of exposure from the information provided to him and a review of the literature. *Id.* at 105.

Dr. Perez states that Lemberger experienced chronic exposure to diesel exhaust during his entire forty-one-year career as a track laborer and track welder for Union Pacific and his average exposure while performing track laborer and track welder duties for Union Pacific were consistent with those in the low to intermediate range of exposed occupations. Filing No. 49, Ex. 5, Dr. Perez Report at 5. Based on his evaluation and his education and experience in the field, Dr. Perez states that U.P. failed to provide a reasonably safe place to work in failing to provide air monitoring or otherwise determine Lemberger's level of exposure to diesel exhaust; failing to provide Lemberger with appropriate personal protective equipment; failing to implement any administrative or engineering controls to reduce or prevent diesel exhaust exposure; and failing to provide adequate warnings, training, and information about the hazards of diesel exhaust. *Id.* at 10. He further opines that U.P. failed to comply with the OSHA Hazard communication Standard, and the OSHA General Duty Clause, OSHA Act Section

² Those studies were: S.R. Woskie et al. *Estimation of the Diesel Exhaust Exposures of Railroad Workers: I. Current Exposures*, 13 American Journal of Industrial Medicine 381-84 (1988) ("Woskie") and Anjoeka Pronk, et al., *Occupational Exposure to Diesel Engine Exhaust: A Literature Review*, 19 Journal of Exposure Science and Environmental Epidemiology at 443-457 (2009) ("Pronk").

5(a)(1). *Id.* Dr. Perez concluded that U.P.'s actions fell beneath a reasonable standard of care. *Id.*

Dr. Arthur Frank, M.D., Ph.D., is board certified in internal medicine and in occupational medicine. He is currently a Professor of Public Health in the Department of Environmental and Occupational Health at Drexel University School of Public Health, a Professor of Medicine at Drexel University School of Medicine, and a Professor of Civil, Architectural and Environmental Engineering at Drexel University College of Engineering. [Filing No. 55](#), Ex. 2, Dr. Arthur Frank Curriculum Vitae at 2-3. For most of his career, he treated patients clinically and he currently supervises nurse practitioners. *Id.*, Ex. 4, Deposition of Arthur I. Frank, M.D. ("Dr. Frank Dep.") at 33-35. He also testified that in order to be board certified in occupational medicine, he was required to know some toxicology. *Id.* at 44. He has taken toxicology courses and was a professor of toxicology at the University of Kentucky, from 1983 to 1994. *Id.* He also stated that he was required to know more epidemiology than most physicians and he has taught epidemiology and has done epidemiological research. *Id.*

Dr. Frank testified that, in his opinion, Lemberger's exposures to benzene through his employment at the railroad contributed to his developing CML. *Id.* at 60. In formulating his opinion, Dr. Frank reviewed Lemberger's diagnosis of CML, Dr. Perez's report, and some literature. *Id.* at 10-14. In particular, he relied on studies by Vlaanderen (a meta-analysis), Aksoy, Glass, Infante, and Blood. *Id.* at 21-22, 28-29, 116-17. Further, he stated that he reviewed and relied on Dr. Perez's report to document the type of exposure that Lemberger had. *Id.* at 25-26. Dr. Frank testified as to his understanding of Lemberger's exposures:

What I'm going to testify to is pretty straightforward. The exposures that Mr. Lemberger had, the one that concerns me with regard to his developing CML, is the benzene he was exposed to from his work with diesel, diesel equipment and diesel exhaust, and that would have been contributory to his developing his CML.

Id. at 60. Dr. Frank was questioned at his deposition about the amount of exposure necessary to cause CML, known as dose response.³ *Id.* at 65. As far as the dose response, he stated

—for most carcinogens, the greater the dose, the greater the likelihood of getting the disease, and that's coupled with the fact that there's no known safe level of exposure to benzene, but background levels by themselves have not been shown to cause this disease, but all of the studies that link CML and benzene have all been in people exposed at a level above background.

Id. at 69. He explained that “nobody knows the dose response. It's a concept. There's no specific dose and a specific rate of response for benzene, for asbestos, for radiation, for whatever.” *Id.* at 71. Further, he testified that dose levels vary and generally are not reflected in specific numbers but are measured in number of years. *Id.* at 69. Based on Dr. Perez's report, the information provided to him by the plaintiff's attorneys, and his experience and expertise, he stated that Lemberger's exposure would have been more than the background exposure, stating that “if Mr. Lemberger, who was exposed to diesel exhaust and worked with diesel fuel, did this on an ongoing and regular basis for decades while working for the railroad, we know that he was exposed above background.” *Id.* at 70. He also testified he had worked on thousands of cases for forty years and had “never had quantitative data, I have had qualitative data.” *Id.* at 70-71. He stated that he had “knowledge of what the workplace is like and what the exposures

³ A dose-response relationship is primarily a hallmark of toxicology. *King v. Burlington N. Santa Fe Ry. Co.*, 762 N.W.2d 24, 40 (Neb. 2009). “If higher exposures to the agent increase the incidence of disease, the evidence strongly suggests a causal relationship.” *Id.*

are like and are they above background, and that's all I have in this case but I can't give you a number.” *Id.* He stated that the “people that would be responsible for creating those numbers were not Mr. Lemberger, but would have been the Union Pacific for whom he worked.” *Id. at 71.*

Dr. Frank testified that he employed a differential diagnosis approach in determining causation. *Id. at 63.* He also testified he utilized the Bradford Hill criteria.⁴ Under that framework, he stated

So, for example, did the exposure occur before the disease? The answer is yes. Is it biologically plausible? Well, benzene causes many other hematologic abnormalities, including AML, CLL, probably ALL. There's some evidence for that. It causes multiple myeloma, so blood tissue is affected by benzene. Is there either animal or laboratory data that's supportive? Benzene does cause genetic changes in DNA. That's one of the characteristics of cancer in general and CML in particular. There's a particular chromosome called the Philadelphia Chromosome that is abnormal in many, but not all, cases of CML. So it's those kinds of criteria that I applied to this.

Id. at 65. He considered age as a factor and discounted smoking history and exposure to radiation as alternative causes. *Id. at 63, 105.* He also testified that epidemiological literature supports his conclusions. *Id. at 86-87.*

In support of its motion for summary judgment, U.P. presents the declaration of its own expert, Dr. James O. Armitage, and several studies. [Filing No. 43-3](#), Ex. 15, Declaration of James O. Armitage, M.D. (“Dr. Armitage Decl.”); Filing Nos. 42-7 to 42-12, Exs. 7-12, Abstracts and Studies; [Filing No. 43-1](#) to 43-4, Exs. 13, 14, and 16,

⁴ The Federal Judicial Center (“FJC”) Reference Manual sets out the “Bradford Hill” factors that epidemiologists consider in assessing general causation. FJC, *Reference Manual on Scientific Evidence* (“*Reference Manual*”) at 375-76 (2d ed. 2000); see also [King, 762 N.W.2d at 40-41](#). The factors include (1) temporal relationship, (2) strength of the association, (3) dose-response relationship, (4) replication of the findings, (5) biological plausibility, (6) consideration of alternative explanations, (7) cessation of exposure, (8) specificity of the association, and (9) consistency with other knowledge. *Reference Manual* at 375-76. The Reference Manual explains that one or more causation factors may be absent even when a true causal relationship exists. *Id. at 376.*

Studies. Dr. Armitage states that there is no consistent and reliable evidence that CML is caused by exposure to chemicals and most often, CML is idiopathic, meaning the condition arises at random or without a known cause. [Filing No. 43-3](#), Dr. Armitage Decl. at 4.

II. LAW

A. Summary Judgment

Summary judgment is appropriate when, viewing the facts and inferences in the light most favorable to the nonmoving party, “the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law.” [Fed. R. Civ. P. 56\(c\)](#). The plain language of Rule 56(c) mandates the entry of summary judgment, after adequate time for discovery and upon motion, against a party who fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial. [Celotex Corp. v. Catrett](#), 477 U.S. 317, 322 (1986). “The movant ‘bears the initial responsibility of informing the district court of the basis for its motion, and must identify ‘those portions of [the record] . . . which it believes demonstrate the absence of a genuine issue of material fact.’” [Torgerson v. City of Rochester](#), 643 F.3d 1031, 1042, (8th Cir. 2011) (*en banc*) (quoting [Celotex](#), 477 U.S. at 323). If the movant does so, “the nonmovant must respond by submitting evidentiary materials that set out ‘specific facts showing that there is a genuine issue for trial.’” *Id.* (quoting [Celotex](#), 477 U.S. at 324). If “reasonable minds could differ as to the import of the evidence,” summary judgment should not be granted. [Anderson v. Liberty Lobby, Inc.](#), 477 U.S. 242, 251 (1986).

The evidence must be viewed in the light most favorable to the nonmoving party, giving the nonmoving party the benefit of all reasonable inferences. *Kenney v. Swift Transp., Inc.*, 347 F.3d 1041, 1044 (8th Cir. 2003). “In ruling on a motion for summary judgment, a court must not weigh evidence or make credibility determinations.” *Id.*

B. Expert Testimony

Federal Rule of Evidence 702 governs the admissibility of expert testimony and requires that: “(1) the evidence must be based on scientific, technical or other specialized knowledge that is useful to the finder of fact in deciding the ultimate issue of fact; (2) the witness must have sufficient expertise to assist the trier of fact; and (3) the evidence must be reliable or trustworthy.” *Kudabeck v. Kroger Co.*, 338 F.3d 856, 859 (8th Cir. 2003). When faced with a proffer of expert testimony, trial judges are charged with the “gatekeeping” responsibility of ensuring that all expert evidence admitted is both relevant and reliable. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 147 (1999); *Daubert*, 509 U.S. at 589; *United States v. Merrell*, 842 F.3d 577, 582 (8th Cir. 2016). The proponent of expert testimony bears the burden of providing admissibility by a preponderance of the evidence. *Lauzon v. Senco Prods.*, 270 F.3d 681, 686 (8th Cir. 2001).

Testimony is relevant if it is “sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute.” *Daubert*, 509 us at 591. In the Eighth Circuit, a district court should apply a three-part test when screening expert testimony under Rule 702:

First, evidence based on scientific, technical, or other specialized knowledge must be useful to the finder of fact in deciding the ultimate issue of fact. This is the basic rule of relevancy. Second, the proposed witness must be qualified to assist the finder of fact. Third, the proposed

evidence must be reliable or trustworthy in an evidentiary sense, so that, if the finder of fact accepts it as true, it provides the assistance the finder of fact requires.

Lauzon, 270 F.3d at 686 (internal citations and quotations omitted). Expert testimony assists the trier of fact when it provides information beyond the common knowledge of the trier of fact. *Kudabeck*, 338 F.3d at 860.

To satisfy the reliability requirement, the party offering the expert testimony must show by a preponderance of the evidence “that the methodology underlying [the expert’s] conclusions is scientifically valid.” *Barrett v. Rhodia, Inc.*, 606 F.3d 975, 980 (8th Cir. 2010) (citations omitted). In making the reliability determination, the court may consider:

(1) whether the theory or technique can be or has been tested; (2) whether the theory or technique has been subjected to peer review or publication; (3) whether the theory or technique has a known or potential error rate and standards controlling the technique’s operations; and (4) whether the theory or technique is generally accepted in the scientific community.

Russell v. Whirlpool Corp., 702 F.3d 450, 456 (8th Cir. 2012). Additional factors to consider include: “whether the expertise was developed for litigation or naturally flowed from the expert’s research; whether the proposed expert ruled out other alternative explanations; and whether the proposed expert sufficiently connected the proposed testimony with the facts of the case.” *Polski v. Quigley Corp.*, 538 F.3d 836, 839 (8th Cir. 2008) (quoting *Sappington v. Skyjack, Inc.*, 512 F.3d 440, 449 (8th Cir. 2008)). “This evidentiary inquiry is meant to be flexible and fact specific, and a court should use, adapt, or reject” these factors as the particular case demands. *Russell v. Whirlpool*, 702 F.3d at 456 (citation omitted).

When making the reliability inquiry, the court should focus on “principles and methodology, not on the conclusions that they generate.” *Kuhn v. Wyeth, Inc.*, 686 F.3d 618, 625 (8th Cir. 2012). However, “conclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data.” *Gen. Elec. Co. v. Joiner*, 118 S. Ct. 512, 519 (1997); see also *Russell v. Ill. Cent. R.R. Co.*, No. W2013-02453-COA-R3-CV, 2015 WL 4039982, at *6 (Tenn. Ct. App. June 30, 2015) (finding Dr. Arthur Frank’s causation conclusions based on peer-reviewed scientific studies were not an improper extrapolation—his trial testimony was supported by a rational explanation that reasonable persons could accept as more correct than not correct).

In applying the reliability requirement of *Daubert*, the Eighth Circuit draws a distinction between challenges to a scientific methodology and challenges to the application of that scientific methodology. *United States v. Gipson*, 383 F.3d 689, 696 (8th Cir. 2004). “When the *application* of a scientific methodology is challenged as unreliable under *Daubert* and the methodology itself is sufficiently reliable, outright exclusion of the evidence is warranted only if the methodology ‘was so altered by a deficient application as to skew the methodology itself.’” *Id.* at 697 (emphasis in original) (quoting *United States v. Martinez*, 3 F.3d 1191, 1198 (8th Cir. 1993)). Generally, deficiencies in application go to the weight of the evidence, not its admissibility. See *id.* “As a general rule, the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination.” *Bonner v. ISP Techs.*,

Inc., 259 F.3d 924, 929 (8th Cir. 2001) (quoting *Hose v. Chicago Nw. Transp. Co.*, 70 F.3d 968, 976 (8th Cir. 1995)).

“Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” *Daubert*, 509 U.S. at 596. “[C]ases are legion” in the Eighth Circuit that “call for the liberal admission of expert testimony.” *Johnson v. Mead Johnson & Co., LLC*, 754 F.3d 557, 562 (8th Cir. 2014). “As long as the expert’s scientific testimony rests upon ‘good grounds, based on what is known’ it should be tested by the adversary process with competing expert testimony and cross-examination, rather than excluded by the court at the outset.” *Id.* (quoting *Daubert*, 509 U.S. at 590).

District courts are “not to weigh or assess the correctness of competing expert opinions.” *Id.* The jury, not the trial court, should be the one to ‘decide among the conflicting views of different experts.’” *Kumho Tire Co.*, 526 U.S. at 153. Medical experts often disagree on diagnosis and causation and questions of conflicting evidence must be left for the jury’s determination. *Hose*, 70 F.3d at 976.

C. The FELA

Railroads are liable in damages for an employee’s “injury or death resulting in whole or in part from the Railroad’s negligence.” 45 U.S.C. § 51. Appraising negligence under FELA “turns on principles of common law . . . , subject to such qualifications [that] Congress” introduces. *Consolidated Rail Corp. v. Gottshall*, 512 U.S. 532, 543-44 (1994) (noting the qualifications are the modification or abrogation of several common-law defenses to liability, including contributory negligence and

assumption of risk). The FELA is to be liberally construed, but it is not a workers' compensation statute, and the basis of liability is "negligence, not the fact that injuries occur." *Id.* at 543.

FELA imposes upon employers a continuous duty to provide a reasonably safe place to work. *Cowden v. BNSF Ry. Co.*, 690 F.3d 884, 889 (8th Cir. 2012). The railroad's duty to provide a safe workplace is a duty of reasonable care. *CSX Transp., Inc. v. McBride*, 564 U.S. 685, 703 (2011).

However, "a relaxed standard of causation applies under FELA." *Gottshall*, 512 U.S. at 543; see *Holloway v. Union Pac. R.R. Co.*, 762 F. App'x 350, 352 (8th Cir. 2019). The test is simply whether the railroad's negligence played a part—no matter how small—in bringing about the injury. *McBride*, 564 U.S. at 705; see also *Paul v. Mo. Pac. R.R. Co.*, 963 F.2d 1058, 1061 (8th Cir. 1992) (stating that "[u]nder FELA, the plaintiff carries only a slight burden on causation."); *Fletcher v. Union Pac. R.R. Co.*, 621 F.2d 902, 909 (8th Cir. 1980) ("The test of causation under the FELA is whether the railroad's negligence played any part, however small, in the injury which is the subject of the suit."). In FELA cases the negligence of the defendant need not be the sole cause or whole cause of the plaintiff's injuries.⁵ *Claar v. Burlington N. R.R. Co.*, 29 F.3d 499, 503 (9th Cir. 1994).

Despite the lower causation standard under FELA, a plaintiff must still demonstrate some causal connection between a defendant's negligence and his or her injuries. *Brooks v. Union Pac. R.R. Co.*, 620 F.3d 896, 899 (8th Cir. 2010). In order to

⁵ In contrast, "[t]o establish causation in a common law negligence action, a plaintiff generally must show that the defendant's conduct was a 'substantial factor in bringing about the harm.'" *Tufariello v. Long Island R.R. Co.*, 458 F.3d 80, 87 (2d Cir. 2006) (quoting Restatement 2d of Torts § 431(a)).

avoid summary judgment, a FELA plaintiff is required to produce admissible evidence that the railroad's negligence played a part in causing his alleged injury. *Id.* If an injury has “no obvious origin, ‘expert testimony is necessary to establish even that small quantum of causation required by FELA.’” *Brooks*, 620 F.3d at 899 (quoting *Claar*, 29 F.3d at 504); see also *Mayhew v. Bell S.S. Co.*, 917 F.2d 961, 963 (6th Cir. 1990) (“[A]lthough a [FELA] plaintiff need not make a showing that the employer's negligence was the sole cause, there must be a sufficient showing (i.e. more than a possibility) that a causal relation existed.”).

“The standard of causation under FELA and the standards for admission of expert testimony under the Federal Rules of Evidence are distinct issues and do not affect one another.” *Claar*, 29 F.3d at 503. *Daubert* 's standards for determining the admissibility of expert testimony apply regardless of whether the plaintiff's burden to prove causation is reduced. *Wills v. Amerada Hess Corp.*, 379 F.3d 32, 47 (2d Cir. 2004) (involving Jones Act and stating that “the standards for determining the reliability and credibility of expert testimony are not altered merely because the burden of proof is relaxed”); see also *Taylor v. Consol. Rail Corp.*, No. 96-3579, 114 F.3d 1189 (Table), 1997 WL 321142, at *6–7 (6th Cir. June 11, 1997) (noting it is well established that the admissibility of expert testimony is controlled by *Daubert*, even in FELA cases); *Hose*, 70 F.3d at 976 (applying *Daubert* in an FELA case).⁶

⁶ That is not to say that the lower standard of proof has no effect on a *Daubert* inquiry. *Daubert* 's relevancy inquiry (that is, whether the evidence assists the trier of fact) may be affected by the reduced statutory burden of proof. *Wills*, 379 F.3d at 47; see *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1321 (9th Cir. 1995) (on remand from the Supreme Court) (stating that where the pertinent inquiry is whether the proffered expert testimony “will assist the trier of fact” in determining causation, the court looks to the governing substantive standard).

A differential diagnosis is “an alternative method of establishing causation,” one which may be utilized where the particular facts of the case do not lend themselves to quantitative analysis.⁷ *Hardyman v. Norfolk & W. Ry. Co.*, 243 F.3d 255, 261 (6th Cir. 2001)(rejecting defendant railroad’s argument that the only way the plaintiff could establish causation would be with the proffer of a known “dose/response relationship” or “threshold phenomenon[.]”); see also *Russell v. Ill. Cent. R.R.*, No. W2013-02453-COA-R3-CV, 2015 WL 4039982 at *4 (finding that the process of considering all relevant potential causes of a plaintiff’s cancer and eliminating alternative causes produces a reliable opinion) (involving the testimony of Dr. Arthur Frank). “In performing a differential diagnosis, a physician begins by ‘ruling in’ all scientifically plausible causes of the plaintiff’s injury. The physician then ‘rules out’ the least plausible causes of injury until the most likely cause remains.” *Glastetter v. Novartis Pharm. Corp.*, 252 F.3d 986, 989 (8th Cir. 2001). A reliable differential diagnosis typically, though not invariably, is performed after “physical examinations, the taking of medical histories, and the review of clinical tests, including laboratory tests,” but “[a] doctor does not have to employ all of these techniques in order for the doctor’s diagnosis to be reliable” and “[a] differential diagnosis may be reliable with less than all the types of information set out above.” *Kannankeril v. Terminix Int’l, Inc.*, 128 F.3d 802, 807 (3d Cir. 1997).

In the Eighth Circuit, differential diagnoses in general pass muster under the four considerations identified in *Daubert*. *Johnson*, 754 F.3d at 564 (agreeing with other

⁷ Courts sometimes fail to distinguish between differential diagnosis and differential etiology. *King*, 762 N.W.2d at 49. Differential diagnosis refers to a physician’s “determination of which one of two or more diseases or conditions a patient is suffering from, by systematically comparing and contrasting their clinical findings.” *Id.* “In contrast, etiology refers to determining the causes of a disease or disorder.” *Id.* at 49-50

circuits that a differential diagnosis is a tested methodology, has been subjected to peer review/publication, does not frequently lead to incorrect results, and is generally accepted in the medical community). In fact, the Eighth Circuit has “termed an opinion [based on a differential diagnosis] ‘presumptively admissible,’ noting that a district court may not exclude such expert testimony unless the diagnoses are ‘scientifically invalid.’”

Id. Also, the Eighth Circuit has “consistently ruled that experts are not required to rule out all possible causes when performing the differential etiology analysis.” *Id.* at 563.

Under general negligence principles, in a toxic tort case, “at a minimum . . . there must be evidence from which the factfinder can conclude that the plaintiff was exposed to levels of [the toxic agent at issue] that are known to cause the kind of harm that the plaintiff claims to have suffered.” *Mattis v. Carlon Elec. Prods.*, 295 F.3d 856, 860 (8th Cir. 2002)(addressing causation in the context ordinary negligence and a proximate cause standard). To prove causation in a toxic tort case, a plaintiff must show both that the alleged toxin is capable of causing injuries like that suffered by the plaintiff in persons subjected to the same level of exposure as the plaintiff, and that the toxin was the cause of the plaintiff's injury. *Wright v. Willamette Indus.*, 91 F.3d 1105, 1106 (8th Cir. 1996) (under Arkansas law, applying a proximate cause standard that required evidence from which a reasonable person could conclude that a defendant's emission had *probably caused* harm in order to recover). However, even under common-law negligence standards, a plaintiff does not need to produce a “mathematically precise table equating levels of exposure with levels of harm” to show that he was exposed to a toxic level of a chemical, but must only present “evidence from which a reasonable person could conclude that his exposure *probably caused* his injuries.”

Bonner, 259 F.3d at 928 (emphasis added). “[W]hile precise information concerning the exposure necessary to cause specific harm to humans and exact details pertaining to the plaintiff's exposure are beneficial, [it must be recognized that] such evidence is not always available, or necessary, . . . and need not invariably provide the basis for an expert's opinion on causation.” *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 264 (4th Cir. 1999) (involving strict liability, breach of warranty, and negligence action).

In the context of the FELA, a plaintiff need not necessarily prove the levels of a toxin to which he or she was exposed. See *Hardyman*, 243 F.3d at 262-66 (reversing trial court's ruling that plaintiff could establish causation only by showing a “dose/response relationship” between exposure levels and risk of disease and finding that an expert need not possess specific dosage information in order to testify about causation in an FELA case); *Harbin v. Burlington N. R.R. Co.*, 921 F.2d 129, 132 (7th Cir. 1990) (finding a plaintiff need not identify the specific composition and density of soot present in his work environment to survive a summary judgment—although “expert testimony documenting the hazards posed by the presence of so many parts per million of soot in the air would certainly enhance [the plaintiff's] case, it is not essential under the regime of the [FELA].”); *Higgins v. Consol. Rail Corp.*, No. 1:06-CV-689 GLS/DRH, 2008 WL 5054224, at *4 (N.D.N.Y. Nov. 21, 2008) (finding an issue of fact as to causation even if expert testimony had been excluded because due to the slight burden of proof in FELA actions, and stating that a jury may make inferences in an FELA case that it otherwise could not); *Sunnycalb v. CSX Transp., Inc.*, 926 F. Supp. 2d 988, 995-96 (S.D. Ohio 2013) (finding that the plaintiff's inability to establish a precise level of chemical exposure did not bar recovery under FELA—the evidence was sufficient for

the jury to draw the reasonable inference that CSX's negligence played a part in plaintiff's injuries); *Payne v. CSX Transp., Inc.*, 467 S.W.3d 413, 457 (Tenn. 2015) (“[S]tated simply, the Plaintiff's experts were not required to establish ‘a dose exposure above a certain amount’ before they could testify about causation.”); and *Russell v. Ill. Cent. R.R.*, No. W2013-02453-COA-R3-CV, 2015 WL 4039982 (rejecting defendant railroad's contention that Dr. Arthur Frank's opinions were not reliable because the differential diagnoses on which they were based “did not consider the dose, frequency or duration” of the plaintiff's exposure to carcinogens at work).

III. DISCUSSION

The Court first finds the defendant's motions to exclude the testimony of Drs. Frank and Perez should be denied. Both experts are clearly qualified to render their opinions and their opinions are relevant and reliable enough to pass muster under Rule 702 and *Daubert*.

The Court rejects the defendant's contention that Dr. Frank's testimony is unreliable because it is based only on plaintiff's counsel's assessment of Lemberger's exposure. To the contrary, Dr. Frank testified that he read and relied on Dr. Perez's report, which contained information on exposure gleaned from an extensive interview with Lemberger, as well as discussion of studies of exposure involving railroad workers and similar occupations. Dr. Frank based his testimony on materials furnished by the plaintiff's attorney, on the report of Dr. Perez, a review of the literature, and his extensive knowledge, experience, and expertise. Based on that evidence, he testified that Lemberger's exposure to benzene in diesel exhaust was above that which would be

considered a background exposure. He properly extrapolated his opinion that exposure to diesel exhaust contributed to Lemberger's CML.

A differential diagnosis is a tested methodology that has been subjected to peer review/publication, has been shown not to frequently lead to incorrect results, and is accepted in the medical community. Dr. Frank's testimony establishes, to a reasonable degree of medical certainty, the requisite causal connection between the toxin at issue and the injury—that U.P.'s negligence in exposing Lemberger to diesel exhaust over forty-years of employment—played a part in Lemberger's development of cancer.

Dr. Frank's lack of quantitative data is not fatal to the admissibility of his opinion, the lack of such data is typical in epidemiological cases. Dr. Frank's reliance on qualitative data—including self-reported exposure over forty years—is appropriate under these circumstances. Any alleged shortcomings in his evaluation are properly the subject of cross-examination and do not call for exclusion of the testimony.

His opinion that the exposure was *a* cause, not *the* cause, of the cancer, might be less helpful to the jury, therefore less relevant, if the standard of causation were proximate cause. If Dr. Frank were required to establish that Lemberger's exposure to benzene was the proximate, or the most probable, cause of Lemberger's CML, his differential etiology analysis might not meet *Daubert's* standards for relevance and reliability. But, under FELA, he is not required to do that.⁸

⁸ Because of the lower standard of proof of causation under the FELA, the defendant's focus on dose-response as integral to the experts' analyses is misplaced. The cases cited by U.P. for that proposition involve proximate cause as the standard of proof of causation.

The Court finds Dr. Frank's opinion on causation has a factual basis and is supported by accepted scientific theories.⁹ The record shows Dr. Frank accepted Dr. Perez's methodology. He based his opinion on Lemberger's diagnosis in medical records, and Lemberger's account of exposure. He also relied on his general experience and readings, general medical knowledge, standard textbooks, and standard references.

The defendant relies in part on the declaration of its expert to discredit Dr. Frank's opinion. If the Court were to accept Dr. Armitage's opinion over that of Dr. Frank's, it would be invading the province of the jury.

The Court similarly finds that Dr. Perez's testimony is admissible under *Daubert*. The defendant's criticisms go to the weight, rather than the admissibility of his testimony. Dr. Perez interviewed Lemberger, reviewed Lemberger's deposition testimony, and conducted a literature review. He relied on peer-reviewed studies, including Woskie and Pronk, in forming his opinion. Dr. Perez's review of the literature indicated that Lemberger's exposure was elevated and put him at increased risk. Although Dr. Perez could not determine a specific level of exposure, he stated that based on Lemberger's reported exposure, his job duties, and the literature, Lemberger

⁹ Also, Dr. Frank's expert opinion testimony has previously been accepted in Nebraska courts. See *Boren v. Burlington N. & Santa Fe Ry. Co.*, 637 N.W.2d 910, 922 (Neb. Ct. App. 2002) (finding an opinion of causation is not dependent on having evidence of specific levels of exposure and a plaintiff need not need to produce a mathematically precise table equating levels of exposure with levels of harm in order to show that he was exposed to a toxic level of the various chemicals); see also *King*, 762 N.W.2d at 33, 51 (reversing the Nebraska Court of Appeals' affirmance of the trial court's exclusion of Dr. Frank's testimony and remanding for consideration of "the primary admissibility issue for Frank's opinion on specific causation . . . whether he had good grounds for ruling in [the plaintiff's] diesel exhaust exposure as a plausible cause of his cancer."). Dr. Frank's testimony has also been accepted in the United States District Court for the District of Puerto Rico and in the Tennessee Court of Appeals. *Campos v. Safety-Kleen Sys., Inc.*, 98 F. Supp. 3d 372, 380 (D.P.R. 2015) (finding, in a case involving benzene exposure and CML, that the defendant's objections went to weight and credibility of Dr. Frank's testimony, not its admissibility); *Russell v. Ill. Cent. R.R., No. W2013-02453-COA-R3-CV*, 2015 WL 4039982 at *6 (affirming admission of Dr. Frank's causation testimony).

had a low to intermediate level of exposure to benzene. His methodology was reasonable in light of his familiarity with industrial hygiene standards. Dr. Perez has the qualifications and expertise to express an opinion on the railroad's negligence.

Dr. Perez's lack of familiarity or failure to consider U.P. air-quality studies is not a reason to exclude his testimony, but rather an issue to be explored on cross-examination. Also, there is no dispute that Lemberger's individual level of exposure was not objectively measured. Similarly, Dr. Perez's failure to consider evidence of the chemical composition of the diesel fuel used by U.P. is of no consequence because that information would offer only a snapshot of chemical composition of diesel fuel at the moment, and not over the course of Lemberger's forty-year history of employment.

Moreover, the Court finds the defendant's reliance on the exclusion of expert testimony in other FELA cases in this district is misplaced. First, this Court is not bound by those decisions. Further, those cases are inapposite. The cases involved different experts, different diseases, different jobs, and consideration of different factors in the differential etiology analysis.¹⁰ Also, all of the cases have been appealed.

¹⁰ See, e.g., *Byrd v. Union Pac. R.R. Co.*, No. 8:18CV36, 2020 WL 1848496, at *6 (D. Neb. Apr. 13, 2020) (excluding the testimony of Dr. Robert Gale on causation and Dr. Joseph R. Landolph, Jr., on liability for failure to link the plaintiff's exposure as a fireman/engineer to benzene, benzo(a)pyrene, PAHs, nitrated PAHs, and 2,3,7,8-TCDD (dioxin), asbestos, crystalline silica, silica dust, coal dust and formaldehyde in diesel exhaust to the plaintiff's lung cancer and COPD without knowing exposure levels and failing to adequately rule out the plaintiff's two-pack-a-day, forty-year, smoking history as the sole cause of the lung cancer), *appeal docketed*, No. 20-1959 (8th Cir. May 12, 2020); *McLaughlin v. BNSF Ry. Co.*, No. 4:18-CV-3047, 2020 WL 641729, at *6 (D. Neb. Feb. 11, 2020) (excluding the causation testimony of Mark Wilkenfeld, M.D., because the expert failed to adequately rule in diesel exhaust as a cause, however small, of the carman plaintiff's lung cancer and failed to adequately rule out thirty-year, pack-and-a-half-a-day cigarette smoking as the sole cause of the lung cancer), *appeal docketed*, No. 20-1494 (8th Cir. Mar. 10, 2020); *West v. Union Pac. R.R. Co.*, No. 8:17CV36, 2020 WL 531994, at *5 (D. Neb. Feb. 3, 2020) (excluding the causation testimony of Dr. Ernest Chiodo that the plaintiff, a locomotive engineer who had renal cancer, was exposed to a high-level of diesel exhaust as speculation based only on the job the plaintiff held, without reliance on the testimony of an industrial hygiene expert or other facts or data), *appeal docketed*, No. 20-1422 (8th Cir. Mar. 4, 2020); and *Harder v. Union Pac. R.R. Co.*, No. 8:18CV58, 2020 WL 469880, at *1 (D. Neb. Jan. 29, 2020) (excluding expert testimony of Dr. Ernest Chiodo that the railroad machinist's follicular lymphoma (a type of Non-Hodgkin's Lymphoma) was caused by exposure to diesel exhaust, solvents, welding fumes, and benzenexic substances while working on locomotives

In conclusion, the Court's review of the record shows that the scientific testimony at issue rests on "appropriate validation—i.e., 'good grounds', based on what is known," *Daubert*, 509 U.S. 590, and "should be tested by the adversary process with competing expert testimony and cross-examination, rather than excluded by the court at the outset." *Johnson*, 754 F.3d at 562. The experts' opinion are not so "fundamentally unsupported that [the testimony] can offer no assistance to the jury." *Bonner*, 259 F.3d at 929–30.

The methodology employed by the plaintiff's experts is scientifically valid, can properly be applied to the facts of this case, and is reliable enough to assist the trier of fact. See *Daubert*, 509 U.S. at 593–94. This is not the sort of junk science that *Daubert* addresses. Even if there are grounds for some alternative conclusion or flaws in the experts' methods, the expert testimony at issue is within "the range where experts might reasonably differ," and the jury, not the trial court, should be the one to "decide among the conflicting views of different experts." *Kumho Tire*, 526 U.S. at 153.

With the admission of the expert testimony, there is an issue of fact for the jury on the exposure and whether the exposure contributed to the plaintiff's CML. U.P. has not shown as a matter of law that the plaintiff cannot prevail in establishing that U.P.'s negligence "played a part" in Lemberger's injury. Accordingly, the Court finds the defendant's motion for summary judgment should also be denied.

IT IS ORDERED:

1. The defendant's motions in limine (Filing Nos. 39 and 40) are denied.

because the expert was unaware of the plaintiff's length of exposure, concentration of exposure, and the atmosphere of exposure), *appeal docketed*, No. 20-1417 (8th Cir. Mar. 2, 2020).

2. The defendant's motion for summary judgment ([Filing No. 41](#)) is denied.

Dated this 29th day of May, 2020.

BY THE COURT:

s/ Joseph F. Bataillon
Senior United States District Judge